

U.S.S.N. 09/273,691

REMARKS

Thorough examination and careful review of the application by the Examiner is noted and appreciated.

Claims 1-5, 7-18 and 20-22 are pending in the application. Claims 1-5, 7-18 and 20-22 stand rejected.

**Claim Rejections Under 35 USC §103**

Claims 1-5, 7-18 and 20-22 are rejected under 35 USC §103(a) as being unpatentable over Kim et al '948, in view of Kim et al '566 and Yamamoto et al '460. While the Examiner acknowledges that Kim '948 does not expressly disclose the coating of a black matrix film on a glass cover plate and patterning the black matrix film into apertures corresponding to the repair lines and allowing a laser beam to pass therethrough for welding a repair line to a busline, the Examiner nevertheless has taken the position that Kim '566 discloses a black matrix film formed on the inner surface of a front glass substrate and patterned to define an aperture area. It is further contended that Yamamoto et al discloses the laser beam using the aperture to perform the repair.

U.S.S.N. 09/273,691

The rejection of claims 1-5, 7-18 and 20-22 under 35 USC §103(a) based on Kim et al '948, Kim et al '566 and Yamamoto et al '460 is respectfully traversed.

The present invention, as narrowly recited in independent claim 1:

"Claim 1. A front-side repairable TFT-LCD assembly comprising:

a TFT-LCD equipped with a first multiplicity of buslines,

at least one repair line positioned outside of and in parallel with a circuitry on said TFT-LCD, said at least one repair line intersects said first multiplicity of buslines with an insulating layer thereinbetween, and

a black matrix film coated on a glass substrate positioned juxtaposed to said repair lines and buslines, said black matrix film having a second multiplicity of apertures formed therethrough each corresponding to a location where

U.S.S.N. 09/273,691

one of said at least one repair line intersects said first multiplicity of buslines allowing a laser to pass therethrough for welding a repair line to a busline."

The present invention, as narrowly recited in independent claims 1, 10 and 20 requires the key elements of:

1. A first multiplicity of buslines,
2. At least one repair line positioned outside of ... said TFT-LCD, said at least one repair line intersects said first multiplicity of buslines with an insulating layer thereinbetween, and
3. A second multiplicity of apertures ... each corresponding to a location where one of said at least one repair line intersects said first multiplicity of buslines ..."

The Applicants respectfully submit that such key elements of the present invention are not taught, disclosed or suggested by Kim '948, Kim '566 and Yamamoto '460.

U.S.S.N. 09/273,691

Kim '948, as conceded by the Examiner on page 3 of the 07/24/2002 Office Action does not disclose coating a black matrix film on a glass cover plate, patterning the black matrix film with apertures corresponding to the repair lines and allowing a laser beam to pass therethrough for welding a repair line to a busline.

Kim '566 discloses a liquid crystal display shown in Figs. 2 and 6 and aperture area formed between two glass plates 100, 101, with a color filter 21, a liquid crystal, an electrode 4 and a protective layer 22 therein-between. The aperture is formed, as shown in Figs. 2 and 6, clearly on top of the color filter and the liquid crystal and therefore, not outside the TFT-LCD area, such as that required of the present invention. Throughout the Kim '566 reference, there is no teaching that the apertures should be formed corresponding to a location where one of the at least one repair line intersects the multiplicity of buslines.

Yamamoto '460 discloses a method for repairing a signal line open circuit by connecting each side of the signal line to an adjacent pixel electrode. As shown in Fig. 29 of Yamamoto, the

U.S.S.N. 09/273,691

aperture 6 is formed through a glass lens 9 in the center portion of a bell jar (in a macroscopic scale). The aperture of Yamamoto is not formed in a black matrix film and therefore is completely unrelated to the present invention assembly (in a microscopic scale).

The Applicants respectfully submit that none of the three references of Kim '948, Kim '566 and Yamamoto '460 teaches the present invention key elements presented above either singularly or in combination thereof. The rejection of claims 1-5, 7-18 and 20-22 under 35 USC §103(a) based on these three references is therefore respectfully traversed.

In the Response to Arguments section of the 07/02/2003 Office Action, the Examiner argued that:

"Applicants only arguments are as follows:

1. The Kim's 566 reference does not teach the aperture formed outside the TFT-LCD area and should be formed corresponding to the repair lines intersects the buslines; and
2. The reference Yamaoto does not disclose the aperture is formed in a black matrix."

U.S.S.N. 09/273,691

The Applicants respectfully submit that the present invention, as recited in independent claims 1, 10 and 20, recites three key elements:

1. A first multiplicity of buslines,
2. At least one repair line positioned outside of ... said TFT-LCD, said at least one repair line intersects said first multiplicity of buslines with an insulating layer thereinbetween, and
3. A second multiplicity of apertures ... each corresponding to a location where one of said at least one repair line intersects said first multiplicity of buslines ..."

The Applicants further submit that in order to traverse the \$103 rejection based on Kim '566, Kim '948 and Yamamoto '460, only one argument is necessary, even though other arguments are readily available. The only argument necessary is that none of the three references, either singularly or in combination thereof, does not teach apertures formed in a black matrix film, let alone apertures formed in a black matrix film at locations where one of the at least one repair line intersects the first multiplicity of

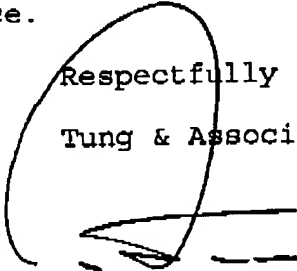
U.S.S.N. 09/273,691

buslines. The Applicants respectfully invite the Examiner to point out the column number and line number in any of the three references the Examiner relied upon for rejection that teaches the presence of apertures in a black matrix film in a structure of an LCD assembly.

Based on the foregoing, the Applicants respectfully submit that all of the pending claims, i.e. claims 1-5, 7-18 and 20-22, are now in condition for allowance. Such favorable action by the Examiner at an early date is respectfully solicited.

In the event that the present invention is not in a condition for allowance for any other reasons, the Examiner is respectfully invited to call the Applicants' representative at his Bloomfield Hills, Michigan office at (248) 540-4040 such that necessary action may be taken to place the application in a condition for allowance.

Respectfully submitted,  
Tung & Associates

  
\_\_\_\_\_  
Randy W. Tung  
Reg. No. 31,311  
Telephone: (248) 540-4040

RECEIVED  
CENTRAL FAX CENTER

OCT 03 2003

OFFICIAL

RWT\kd